

THE FLORIDA SURVIVAL HANDBOOK

All You Ever Wanted to Know
and More About:

- Hurricanes
- Buying Florida Real Estate
- Surviving The Sun
- Sharks
- Florida's Universities
- America's Lightning Capital
- The Citrus State
- The Florida Alligator
- Building Energy Smart
- The Everglades
- 500 Years of Florida History
- The Marlin
- and Much,
Much More!

PESKY PESTS

They fly. They crawl. They bite and sting. Sometimes, some try to eat your house.

Florida is home to billions of bugs. Several species have an attitude problem.

Fire Ants

Imported fire ants are a problem throughout Florida. The black fire ant was brought into Alabama from South America around 1918. The much more aggressive red fire ant made the voyage from South America in the 1930s. It is aggressive and territorial. It will kill or drive out native ant species, even our native fire ant species.

Imported fire ants have been reported to attack deer fawns lying motionless waiting for their mothers, attacking and destroying alligator nests, and killing baby birds in their eggs as soon as they pip open the shell.

Fire ants actively defend their colony. When disturbed, workers release an alarm pheromone that stimulates other workers to boil from the mound to attack the threat. Fire ants kill large numbers of insects to feed their larvae back in the mound. The workers feed on a high carbohydrate diet of nectar, plant sap and the honeydew from aphids.

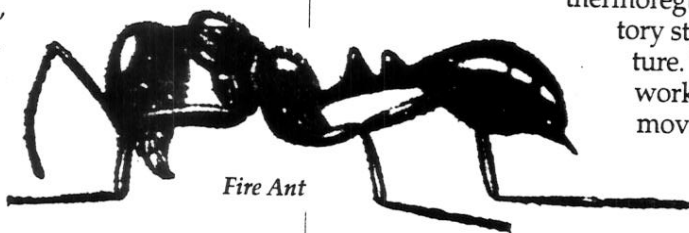
When flooded out of their mounds, fire ants will form balls or rafts with their bodies and float on the surface of the water. If these floating rafts contact stranded livestock, they may seriously sting and have been known to kill trapped animals. These fire ant rafts also are a danger to victims and rescue workers

during flood situations.

The average fire ant colony contains one queen (monogyne) and from 100,000 to 200,000 workers. Single queen colonies have large (majors), medium (minors), and tiny (minims) workers. In pastures, roadsides and other disturbed areas there can be as many as 40 mounds per acre.

A different type of fire ant colony — multiple queen (polygyne) colonies — are being found. These colonies build low mounds, have numerous queens, and all the workers are the same size. The problem with multiple-queen colonies is that their workers are less aggressive to ants from other fire ant colonies.

The mound of the fire ant is a thermoregulatory structure. The workers move the



Fire Ant

ILLUSTRATION COURTESY OF TRULY NOLEN

queen and the brood (eggs, larvae and pupae) up and down within the mound's tunnels, to find the best temperatures for their development. The tunnels under the mound may extend down four feet below the surface. Extending from the mound is a vast array of tunnels just below the surface, along a radius of 30 feet. These are the tunnels that foraging workers use to spread over the colony's territory searching for food. No spot in a colony's territory is more than 20 inches from an opening to a foraging tunnel.

The best control measure is to broadcast treat yards every four to six months with a slow acting poison

bait such as Amdro Fire Ant Bait or Affirm Fire Ant Bait or a bait containing the insect growth regulator fenoxycarb such as Logic Fire Ant Bait to prevent fire ant populations from building. These granular baits should be broadcast over the whole yard where the workers forage and not on top of the mound. If fire ant populations become a serious threat, various drenches and injection systems can be effective in eliminating a few colonies.

Spreading grits on the mound will have no effect.

William H. Kern, Jr., Entomology and Nematology Department, University of Florida at Gainesville.

Termites

Forty-five species of termite exist in the United States. Relax. Of those 45 species, 16 can be found in Florida. Of these 16, only a handful are considered "economically important" and fall into either the subterranean termite family (*Rhinotermitidae*) or drywood termite category (*Kalotermitidae*). Economically important species are termites that damage the structures of man. Some economically important species in Florida are the native or Eastern Subterranean Termite and the Formosan Subterranean Termite.

Termites, like ants, bees and some wasps, are considered eusocial, that is partly defined by the presence of castes. Castes are the division of an insect society based on differences in physical form and the type of work performed. A termite colony has three castes: reproductives, workers and soldiers.

Reproductives range in color from honey to black and are about 1/4-inch to 1/2-inch in length. The

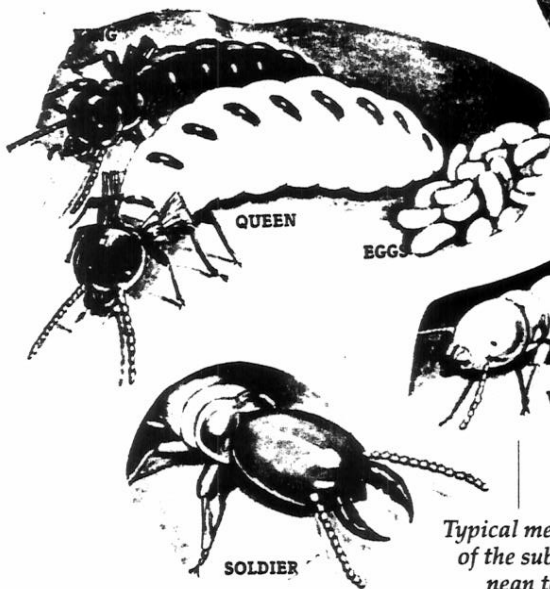




male and female mate for life and are responsible for producing eggs which become the workers and soldiers of the colony. Subterranean termite queens have been known to live up to 25 years and to produce approximately 2,000 eggs per day.

Workers are whitish and soft bodied. They are often mistakenly called "white ants." Workers

SWARMER



ILLUSTRATIONS COURTESY OF TRULY NOLEN

tend the queen (at her reproductive peak she is so large she must be fed and groomed), tend the eggs, feed the young and the soldiers, and forage for food. Worker numbers can range from a few hundred (in the case of drywoods) to almost 10 million (in the case of the Formosan Subterranean Termite). The total weight of a colony with 10 million individuals is about 88 pounds. Eighty-eight pounds would be about the size of a large dog or a family of beavers (two adults, two juveniles), feeding under your property.

Soldiers have a dark, sclerotized head with whitish abdomen and defend of the colony. Soldiers will typically make up between 20 and 30 percent of Formosan subterranean colonies.

Reproductives also are called alates or swarmers. After a nuptial flight, swarmers drop their wings and the males can be seen following

the females in tandem pairs.

Every year alates emerge from mature colonies at specific times, depending on the species.

The Eastern or Native Subterranean Termite swarms can be seen about February through April; the Formosan Subterranean Termite swarms about May through mid-August; the two drywood termites also swarm during Spring.

Formosan Subterranean Termite colonies have been recorded to release as many as 60,000 alates during a swarming season.

The presence of carton or mud tubes along the surface (i.e., walls, baseboards) of a home is reliable evidence of a subterranean termite infestation.

Subterranean termites require high moisture content in their environment and they use the mud tubes to retain a stable environment while foraging for food. Subterranean termites are known to forage distances of 350 feet. Subterranean termite infestations should be taken seriously. The presence of drywood termites can be detected by characteristic fecal pellets which are pushed out of "kick holes" produced by these termites.

For definitive identification, specimens can be submitted to your local urban entomology extension office for identification. Specimens are best preserved in 85 percent ethanol or rubbing alcohol because termites are soft-bodied insects.

The best way to protect your home from subterranean termites is to pretreat the soil with a proven

termiticide before construction. A certified Pest Control Operator (PCO) is usually contacted by the contractor to spray the homesite. In Florida, all structures are required to undergo pretreatment by law. Soil treatment is not intended to kill termite colonies. If done properly, soil treatment creates an effective barrier against subterranean termites by repelling the termites from the area. It essentially creates an island upon which your house rests.

Faith M. Oi, Entomology and Nematology Department, University of Florida at Gainesville

Cockroaches

From 3,500 to 4,000 species of cockroaches roam the world. About a dozen have become pests of man. Cockroaches are a tropical group of insects, with a majority of species living near the equator in tropical forests. Florida is blessed with the greatest number of cockroach species - 41 out of 69 - in North America north of Mexico. They have existed for approximately 250 million years, so Floridians should learn to share the environment with them and appreciate the success of these ancient survivors.

Some of the species, such as the burrowing sand roach, *Arenivaga floridensis*, are native to Florida and are not found elsewhere! Another rather robust native species,

American Cockroach



Eurycotis floridana, is known by Floridians as the Florida stinkroach because of its ability to release a noxious, volatile defensive chemical when disturbed by predators, or irate

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housewives! This roach also is responsible for the term "palmettobug" because it lives in palm trees and feeds on ripened palm tree fruit.

"Palmettobug" is used by Floridians to describe five cockroach species collectively referred to by scientists as *peridomestic*. The five species are American, Brown, Smokybrown, Australian and Florida stinkroach. Except for the Smokybrown cockroach, found north of Orlando, they live throughout the state. They are called *peridomestic*, as opposed to *domestic*, because they live and breed primarily outdoors and enter houses only in search of food and water. *Peridomestic* cockroaches are large (1-2 inches) and can live for nearly two years. A female cockroach forms and deposits an egg case, or *ootheca*, containing from 15 to 25 eggs. The *ootheca* is carefully placed in a location away from parasites and predators. The female commonly covers the *ootheca* with a macerated blend of salivary glues and the substrate on which the *ootheca* will be placed. Adult female *peridomestic* cockroaches produce an *ootheca* about every 10 days. The *ootheca* hatches in about a month; wingless, immature cockroaches require from six to 12 months to reach adulthood, depending on the species. Adult cockroaches live for a year or more.

Primary habitats of *peridomestic* cockroaches are trees with tree holes, woodpiles and palm trees, but they obviously are not restricted to these areas. They like high humidity and low wind. A water supply is more crucial to cockroach survival than food. Palm trees retain moisture in the organic matter between the bracts long after its surrounding environment has dried, making palm trees exceptional cockroach habitat.

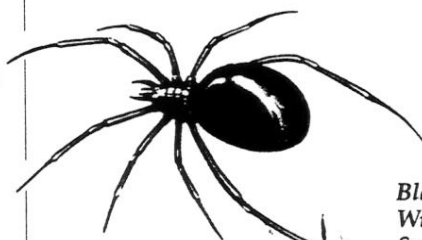
Given the proper habitat, *peridomestic* cockroaches can multiply exponentially. Researchers collected more than 600 cockroaches from a single ornamental palm tree in Gainesville. American cockroaches can reach horrendous numbers in unsanitary situations such as sewage treatment plants and sewer pipes. This is why cockroaches are considered a health threat. Cockroaches could carry disease organisms into homes from sewers.

Some cockroaches can fly and are attracted to lights at night. These include the beautiful green Cuban cockroach and the Asian cockroach. Both of these species live outdoors and do not normally enter homes. The large, winged *peridomestic* cockroaches, like the American, Smokybrown, Brown and Australian, do not fly. They will sometimes jump from high places and flutter to earth to escape enemies.

Dan Suiter, Entomology and Nematology Department, University of Florida at Gainesville

Spiders

Spiders are beneficial because they eat large numbers of insect pests, but some are poisonous. Four species of poisonous widow spiders prowl Florida. The northern black widow is found in the Panhandle. It constructs



Black Widow Spider

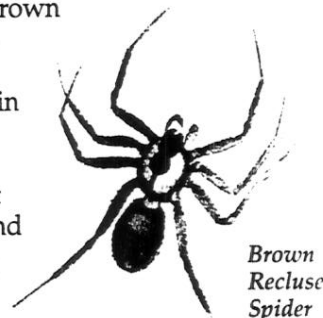
irregular webs in the branches of trees and under the eaves of buildings in wooded areas. The southern black widow is found throughout the state. It constructs irregular webs in protected sites such as under large



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stones, under scrap lumber, inside discarded pipes and equipment, inside meter boxes, storage buildings and, occasionally, in playground equipment and under benches and picnic tables. Both of these spiders are smooth and shiny black.

The brown widow is most common in coastal cities of Southeast Florida and builds its irregular webs



Brown Recluse Spider

in well-lighted areas such as the outsides of service stations and convenience stores. This is a smooth, mottled, brown spider having reddish legs with black joints. It is often confused with the common nonpoisonous American house spider

The red widow is unique to the sand pine scrub habitats of Central and Southeast Florida and makes its irregular webs on the underside of palmetto fronds. This brightly colored spider has red-orange legs and cephalothorax (front half of the body), with a black abdomen (back half) marked by red spots with yellow borders. All the widow spiders have either a red hourglass mark or two red spots that looks like a broken hourglass on their abdomen.

The brown recluse spider is not known to be established in Florida, but is often brought into the state in shipments of goods from southern and central states that are in the range of this spider. It is sometimes called the "fiddleback spider" because of the characteristic dark violin-shaped mark on its cephalothorax. This spider is most often encountered under flat rocks, old inner tubes and loose bark outside and stored boxes indoors.

The brown recluse is small, about the size of a nickel, but it packs a serious bite that requires medical attention. William H. Kern, Jr.



SPIDER BITE FIRST-AID

The bite of a widow spider is not always felt. Usually it feels like a small pin prick or splinter. The venom is strongly neurotoxic, meaning it affects the nervous system. Symptoms may develop from 15 minutes up to three hours after the bite. Symptoms include muscular pain in the shoulders, back or thighs, abdominal pain, elevated blood pressure, nausea, profuse sweating and difficulty in breathing or talking.

All persons bitten by any widow spider should get medical attention. Persons younger than 16 or older than 65 years and persons with hypertensive heart disease are the most at risk.

Most insecticides registered for cockroaches are also registered for spider control. Spiders usually have to be sprayed directly for insecticides to be effective.

Bites from brown recluse spiders often occur due to their habit of hiding in clothing left hanging in outbuildings and barns, such as cover-alls, hats, aprons, etc. The bite is rarely felt and may not produce pain for two to three hours. The venom is tissue destroying and causes a necrotic ulcerous lesion that expands, sometimes down to the bone. This lesion is very slow to heal, often taking months.

Fleas

Pet owners in Florida know that fleas can be a serious problem for their pets. In urban and suburban areas, the cat flea is the flea that infests cats, dogs, ferrets and urban wildlife like squirrels, opossums and raccoons. Fleas are a health threat to pets from blood loss and skin allergies, and are the intermediate host of the tape worm. Human health problems are usually caused by allergic hypersensitivity to flea bites.

Cat flea adults spend their life on the host. The smooth, pearly white eggs fall from the host's pelage and accumulate with adult flea feces where the host animal rests. After about one day the egg hatches into a legless, wormlike larva. After one to three weeks of feeding, the larva spins a silk cocoon in which it pupates. This cocoon is watertight and protects the pupa and pre-

emerged adult from drying out and pesticides.

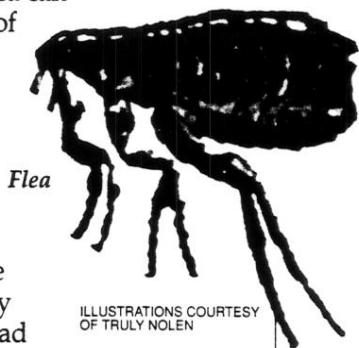
The adult flea can sit in the safety of the cocoon for months waiting for a warm-blooded host to come near. It will then rapidly emerge and jump on the host. That's why fleas can be so bad when you return from an extended vacation. The larvae have completed their development and the adults are just waiting for the vibrations of footsteps or the carbon dioxide in your breath to all emerge at the same time.

The cat flea can occur in large numbers and is difficult to control. Fleas can reproduce year-round in Florida. The warm, humid climate is perfect for their development. The worst flea problems usually occur in the spring and fall.

Insect growth regulators are effective in controlling fleas. These materials mimic insect hormones and cause the fleas to fail to develop into the biting adults. These compounds are active and effective at a few parts per billion, yet are not toxic to vertebrates. There are two insect growth regulators currently registered for flea control, methoprene and fenoxycarb. Methoprene can only be used indoors because it rapidly breaks down in sunlight. Fenoxycarb can be used outdoors in flea breeding areas.

Another group of products that are effective are the borate compounds like boric acid and Polybor™. These compounds kill the flea larvae by contaminating their food. Borate products should not be used outdoors because they kill plants by acting as a nonselective herbicide.

Cat flea larvae usually die if the relative humidity is less than 50 percent for more than a day. Flea larvae usually develop in protected locations and the humidity in these locations rarely stays below 50 percent for more than a few hours in



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Florida. In winter, flea populations and flea problems decrease because atmospheric humidity drops during cold, dry fronts. It is too dry for flea larvae to survive. This is especially true indoors, where dry outdoor conditions combine with forced air heating to create lethally dry indoor conditions for cat flea larvae. In Florida's cool winter temperatures, flea development greatly slows down and the fleas spend up to four times longer in the vulnerable larval stage where pesticides and natural enemies, like ants, can take their toll.

William H. Kern, Jr.

Mosquito

Most mosquitoes are nocturnal or crepuscular, - that is, active at night, dawn or dusk. But some mosquitoes, such as the Asian tiger mosquito and some salt marsh mosquitoes, will bite if attracted from their resting sites in vegetation by human activity.

People have been concerned in the last few years in Florida by outbreaks of Eastern Equine Encephalitis and St. Louis Encephalitis. Luckily, a system of sentinel chicken stations run by the mosquito control districts can predict and warn when outbreaks are

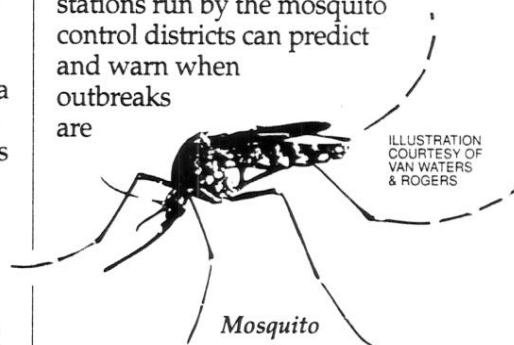


ILLUSTRATION COURTESY OF VAN WATERS & ROGERS

likely to occur. When mosquito problems occur, the usual response is to have the area fogged. This is a temporary solution at best, effective only if a large area, like an entire neighborhood is treated immediately.

You can help control local mosquito production by eliminating as many sources of standing water as possible. Remove or turn over artificial containers and fill treeholes.

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Cut back shrubbery and vegetation to eliminate resting sites. If mosquitoes continue to be a problem, either limit outdoor activity to times of the day when the fewest mosquitoes are active or wear long pants and long sleeved shirts, and apply insect repellent.

Before modern mosquito control and the widespread use of air conditioning, many coastal areas of Florida were uninhabitable. In the Everglades region, there are reports of clouds of mosquitoes being so dense that cattle suffocated when the animals' airways were blocked. Bite counts is the technique used to measure mosquito nuisance levels. Counts in the Everglades and some coastal salt marsh habitats have been estimated at hundreds of bites per minute. So, when you are bitten 10 or 15 times during an evening walk, remember that it could be much worse. *William H. Kern, Jr.*

Scorpions

Florida is home to three common species of true scorpions, none dangerously poisonous. The sting is comparable to a bee sting, painful but usually not life threatening. Scorpions are beneficial because they prey primarily on cockroaches. Hentz's striped scorpion is about one- to one-and-half-inches long, including the stinging tail. It is the most common species in the state.

It normally lives in the crevices of pine tree bark or under the loose bark of dead trees. Occasionally it is found under debris or in firewood piles in and around homes. Key's striped scorpion is about one- to three-inches long and is found in Collier, Dade and Monroe counties, at

the southern end of the Florida peninsula.

The slender brown scorpion is our largest species ranging from 2- to 4-inches long. This scorpion occurs throughout peninsular Florida, but is less common than the striped scorpions.

The easiest way to avoid being bitten or stung is to always wear work gloves when cleaning up outdoor debris, moving firewood, etc., and watching where you put your hands. They are nocturnal, secretive and not aggressive toward people. They only bite or sting when threatened. Spiders and scorpions are solitary and cannibalistic, so they rarely reach high numbers.

Another unusual creature inhabiting dry, sandy habitats in Florida is the giant whipscorpion, also known as the "vinegaroon" or "grampus." This large, scary relative of the scorpions and spiders is harmless to people and defends itself by spraying acetic acid, the acid in vinegar, from the base of its whiplike tail. *William H. Kern, Jr.*

Love-Bugs

The "Love-Bug" is a fly or more often two flies. And when you see two traveling together, well, they're probably making love. Other

common names used for these flies, long the bane of

Florida drivers, include honey-moon flies, double-headed bugs, two-headed bugs and those !#% &*@\$ bugs. They belong to a family of flies collectively called the march flies.

Love bugs are a recent natural Florida invader having migrated from Mexico and Gulf Coast Texas. They hit the Panhandle in 1949, Lake City by 1957, Gainesville in 1966,

Okechobee in 1972 and Miami in 1975.

These amorous flies do not sting, bite or eat our vegetable and ornamental plants. The adults are black with a bright red spot on their thorax between their wings. They feed on nectar from flowers. The adults are short lived. Their whole purpose is to mate and reproduce. Males emerge first and wait for the females to emerge from the leaf litter. They mate and remain attached for several hours or days, often flying in copula.

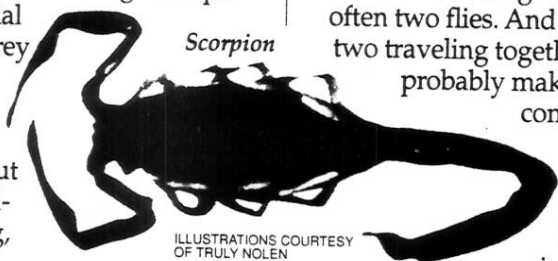
The female lays more than 300 eggs in decaying leaves. The legless larvae are gray and

worm-like. They feed on decaying vegetation and are helpful in returning nutrients to the soil. The

adult Love-Bugs fly during the day. They are protected from vertebrate predators, like birds, by an offensive taste.

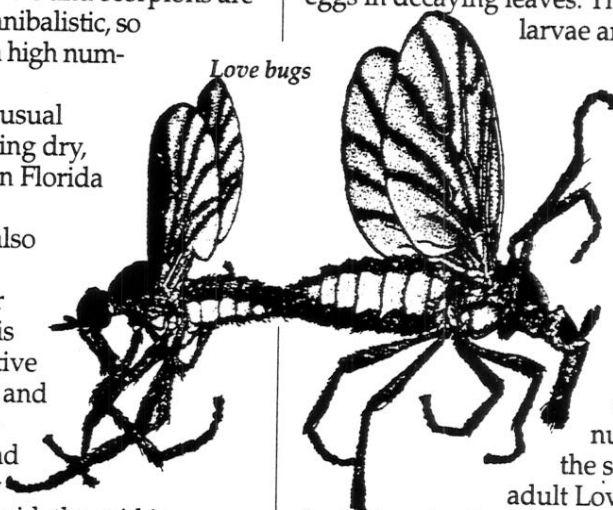
Love-Bugs are considered a pest because they occur in huge numbers in May and September. They can become so numerous that they clog car radiators and obscure the windshields of moving cars. The natural acids in their bodies can damage a car's paint or finish.

What can you do? Try to drive at night, when the flies are sleeping in the vegetation. Use a bug screen to keep the flies from clogging your car's radiator. Wash the squashed "love-bugs" off as soon as possible.



Scorpion

ILLUSTRATIONS COURTESY OF TRULY NOLEN



Love bugs



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